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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/595,031

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Jens C. Rasmussen

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01/30/2009

Fujitsu Patent Center  
C/O CPA Global  
P.O. Box 52050  
Minneapolis, MN 55402

EXAMINER

SEDIGHIAN, REZA

ART UNIT

PAPER NUMBER

2613

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/595,031	<b>Applicant(s)</b> RASMUSSEN ET AL.	
	<b>Examiner</b> M. R. Sedighian	<b>Art Unit</b> 2613	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 November 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 and 6-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 10, 11, 13, 15 and 17 is/are rejected.
- 7) ☒ Claim(s) 4, 6-9, 12, 14 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/30/05 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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1. This communication is responsive to applicant's 11/6/08 amendments and remarks. The amendments have been entered. Claims 1-4 and 6-17 are now pending.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 10-11, 13, 15, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Kikuchi (US Patent No: 6,671,464 B1).

Regarding claims 1, 10, and 11, Kikuchi teaches a polarization mode dispersion compensator (100, fig. 6), comprising: a polarization transformer (PC, fig. 6) to transform polarization of an input optical signal (col. 8, lines 61-67, col. 9, lines 1-5); a compensation unit (136, fig. 6) to compensate for a polarization mode dispersion of the input optical signal and output an output optical signal (col. 8, lines 66-67); a polarimeter (104, fig. 6) to measure a state of polarization and a degree of polarization, and distortion of the output optical signal (col. 3, lines 21-29, col. 9, lines 2-3, col. 12, lines 64-66) and generate a feedback signal (106-1, fig. 6) indicating the measured state of polarization and degree of polarization (col. 9, lines 1-3); and a control circuit (105, fig. 6) to generate based on the feedback signal, control signals (106-1, fig. 6) for adjusting the polarization transformer (PC, fig. 6) so that a plurality of target states of polarization in which the degree of polarization is measured are realized in output optical signals of following operations (col. 9, lines 1-3, col. 12, lines 64-67, col. 13, lines 1-4) and to search the

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plurality of target states of polarization for a state of polarization corresponding to a maximum degree of polarization (col. 3, lines 30-32, col. 5, lines 28-32, col. 12, lines 58-61).

Regarding claims 13, 15, and 17, Kikuchi teaches the control signals are adjusted to drive the polarization transformer according to the state of polarization corresponding to a maximum degree of polarization (col. 7, lines 8-12, col. 9, lines 1-3, col. 12, lines 58-61).

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi (US Patent No: 6,671,464 B1) in view of Rao et al. (US Patent Application Publication No: 2004/0016874 A1).

Regarding claim 2, Kikuchi differs from the claimed invention in that Kikuchi does not disclose the polarization transformer is realized by multiple three-electrode structures on a LiNbO<sub>3</sub> substrate. Rao discloses a polarization transformer (108, fig. 4) that is formed by multiple three-electrode structures on a LiNbO<sub>3</sub> substrate (page 2, paragraph 0015, lines 1-7 and page 5, paragraph 0060, lines 1-5). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a polarization transformer such as the one of Rao for the polarization transformer or the PC of Kikuchi to provide a polarization transformer that transforms the fluctuating output polarization state of the optical fiber into a stable state of polarization (Rao, page 1, paragraph 0002).

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6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi (US Patent No: 6,671,464 B1) in view of Koch et al. (US Patent Application Publication No: 2004/0207902 A1).

Regarding claim 3, Kikuchi further teaches the compensation optical unit can include a polarization maintaining fiber (col. 13, lines 15-17). Kikuchi differs from the claimed invention in that Kikuchi does not disclose the compensation optical unit further includes a birefringent crystal to introduce an amount of different group delay. Koch teaches the use of a birefringent crystal to introduce group delay (page 7, paragraph 0074, lines 1-9). As it is taught by Koch, it would have been obvious to a person of ordinary skill in the art to incorporate a birefringent crystal in the polarization compensation unit of Kikuchi to vary the compensation quantity of polarization mode dispersion.

7. Claims 4, 6-9, 12, 14, and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Applicant's arguments with respect to claims 1, 10, and 11 have been considered but are moot in view of the new ground(s) of rejection.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. R. Sedighian whose telephone number is (571) 272-3034.

The examiner can normally be reached on 9 to 5:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. R. Sedighian/  
Primary Examiner, Art Unit 2613